



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,510	02/12/2004	Cheng-Chieh Liu	0941-0913P	3680
2292 7590 05/15/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER DUDA, RINA I	
			ART UNIT 2837	PAPER NUMBER
			NOTIFICATION DATE 05/15/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**MAILED**  
MAY 11 2007  
**GROUP 2800**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/776,510  
Filing Date: February 12, 2004  
Appellant(s): LIU ET AL.

Joe McKinney Muncy  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/12/07 appealing from the Final Office action mailed 7/11/06 and the Advisory Action mailed on 10/30/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

The real party in interest is Delta Electronics Inc.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

Art Unit: 2837

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng (US patent 5197858).

Claims 1 and 2, Cheng describes a variable speed fan comprising a thermal sensor Rth detecting an environmental temperature of the fan; a driving element IC2 driving the fan (L1-L4) to a specific speed based on the detected temperature; and control elements such as IC31/TR1/TR2 connected between the temperature sensor and the driving element for changing the rotation of the fan by adjusting the first voltage across Rth.

Claim 3, Cheng describes a driving element including hall IC1 and integrated circuit IC2.

Claim 4, Cheng describes a switch circuit including transistors TR1 and TR2 as part of control element.

Claim 5, Cheng describes a switch circuit including comparator IC31, transistors TR1/TR2 and resistors such as Ra/Rb.

Art Unit: 2837

Claim 6, Cheng describes resistor R9 connected in parallel with thermal sensor Rth for adjusting the reference voltage which will be used to determine the desired speed.

Claim 7, Cheng describes resistor R4 connected in series with thermal sensor Rth for controlling the voltage inputted to IC31 which will varied the speed of the fan.

Claim 8, Cheng describes comparator IC31 for subtracting the voltage from the thermal sensor from the reference voltage.

Claim 9, Cheng describes operational amplifier IC31 for comparing the Vth to Vref and at least four resistors connected to it as shown in figure 2.

Claim 10, Cheng describes resistor R4/R9/R10 generate a second voltage Vref in order to adjust a third voltage Vo outputted to the driving circuit for controlling the speed of the fan.

Claim 11, Cheng describes a control element comprising a voltage divider using resistor R9/R10, a comparator IC31 and an output circuit including resistor Ra/Rb and transistors TR1 and TR2.

Claims 12 and 13, Cheng describes in figure 2 and corresponding description how the reference voltage Vref is constantly compared to Vth, the resulting signal is used to adjust the speed of the fan.

Claim 14, Cheng describes a motor speed controller comprising a thermal sensor Rth, a driving circuit IC2 and a control element connected between the sensor and the driving circuit, wherein the control element includes a switch circuit including transistors

Art Unit: 2837

TR1/TR2 and a resistor R9 connected in parallel to the sensor for adjusting the speed of the fan.

Claim 15, Cheng describes a motor control system comprising a thermal sensor Rth, a driving circuit IC2 and a control element connected between the sensor and the driving circuit including a resistor R4 connected in series to the thermal sensor for controlling the speed of the fan.

Claim 16, Cheng describes a motor speed controller comprising a thermal sensor RTh, a driving element IC2, and a control element connected between IC2 and the thermal sensor including a subtract or IC31 and three resistor R4/R9/R10 for adjusting the speed of the fan.

Claim 17, Cheng describes a motor speed controller comprising a thermal sensor RTh, a driving element IC2, and a control element connected between the thermal sensor and the driving element which regulates the voltage outputted to the driving circuit by comparing a reference voltage to the voltage across the thermal sensor wherein said voltage will control the speed of the fan.

#### **(10) Response to Argument**

A. In response to applicant's argument that Cheng does not teach a control element that adjusts the first voltage of the thermal sensor to change the rotation speed and temperature range of the fan, attention is directed to column 2 lines 56-66 and column 3 lines 26-35, where Cheng describes that the voltage across the thermal sensor changes with temperature because the voltage across the thermal sensor is dependent upon the resistance of the thermal sensor that changes with changes in

Art Unit: 2837

temperature. Furthermore, Cheng describes in column 3 lines 26-35 that the range of the speed and temperature of the fan can be changed.

B. In response to applicant's argument that Cheng does not teach a switch circuit as recited in claims 4-6, claim 4 broadly recites that the control element is a switch circuit; Cheng clearly describes a switch circuit including a comparator IC31 (this comparator compares the voltage through the thermal sensor to a reference voltage), transistors such as TR1/TR2, and two resistors (we can see in figure 2 several resistors) having the function as described in figure 2 and corresponding description.

C. In response to applicant's argument that Cheng does not teach a resistor in series with the thermal sensor, attention is directed to figure 2 where Cheng shows resistor R4 connected in series to the thermal sensor Rth.

D. In response to applicant's argument that Cheng does not teach a subtraction circuit, attention is directed to the description of comparator IC31 that takes the difference between the voltage across the thermal sensor and the reference voltage Vref.

E. In response to applicant's argument that Cheng does not teach a division circuit, attention is directed to the description of the voltage divider including resistors R9/R10.

F. In response to applicant's argument with respect to claim 14, attention is directed to figure 2 and corresponding description where Cheng describes a switch circuit including a comparator, transistors, and resistors connected in series and in parallel to control the speed and temperature range of the fan.

Art Unit: 2837

G. In response to applicant's argument with respect to claim 15, attention is directed to item C of this office action where the examiner points out that resistor R4 is connected in series to the thermal sensor Rth.

H. In response to applicant's argument with respect to claim 16, attention is directed to item D of this office action where the examiner has described the subtraction circuit.

I. In response to applicant's argument with respect to claim 17, attention is directed to the description of the control element which includes IC31, the transistors TR1/TR2, and the multiple resistors connected in series or parallel to the thermal resistor Rth, where Cheng describes that the output of comparator IC31 will vary depending upon the voltage across Rth (first voltage) being higher or smaller than the reference voltage.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Rina Duda



Conferees:

Lincoln Donovan



Ricky Mack

